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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,384

10/19/2005

Kazuhiko Ueda

FUKAP0105US

3656

43076 7590 07/06/2007

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EXAMINER

JACOBS, DUSTIN THOMAS

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

07/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,384	UEDA, KAZUHIKO	
	Examiner	Art Unit	
	Dustin Jacobs	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/19/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Japan 2003-170885, filed on 06/16/2003.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

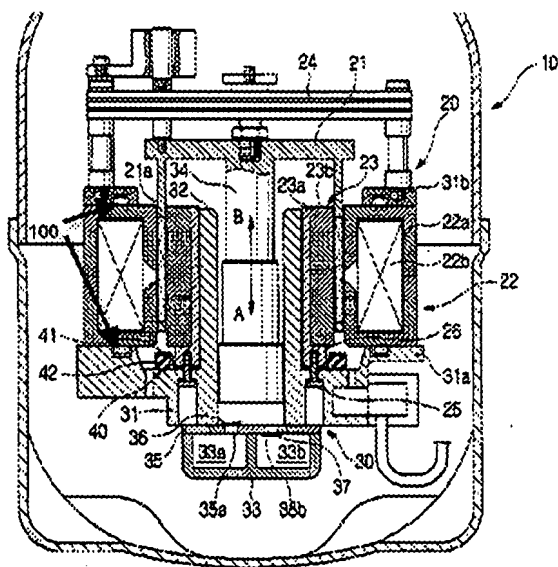
3. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang (US Publication 2003/0147749).

Chang discloses:

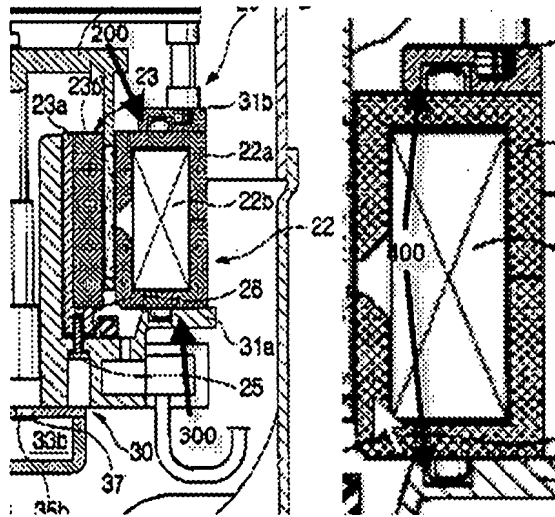
- A linear motor (30, Fig. 2) having an inner yoke (23, Fig. 2) and an outer yoke (22, Fig. 2) outside said inner yoke.
- A coil-wound body (22b, Fig. 2) and a movable magnet portion (21, Fig. 2) for driving a piston (34, Fig. 2) reciprocating in a cylinder (31, Fig. 2), both located between said inner yoke and said outer yoke.

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- A first and second clamping members (31a and 31b, Fig. 2) for clamping said outer yoke, and a spacer (100, edited Fig. 2; par. 41, lines 11-15)) for coupling (par. 41, lines 1-15) said first and second clamping members at a given spacing.
- The first clamping member (31b, Fig. 2) being provided with a support portion (20, Fig. 2) for supporting a spring (24) for pushing said piston, and a second clamping member (31a, Fig. 2) being fixed directly or indirectly to the cylinder (31, Fig. 2).



In re claim 2, the spacer (100, edited Fig. 2) has axial end faces and smaller-diameter portions (100, edited Fig. 2) protruding from the axial end faces at both ends, and the first and second clamping members (31a and 31b, Fig. 2) have first and second receiving portions (200 and 300, edited Fig. 2) having concave portions for receiving said smaller-diameter portions of said spacer and support surfaces for supporting the axial end faces of said spacer.



In re claim 6, a linear compressor (10, Fig. 2) comprising of the linear motor (30, Fig. 2).

4. Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Chang '759. Chang '759 discloses:

- A linear compressor (10, Fig. 2) having a cylinder (32, Fig. 2) provided in a casing (10, Fig. 2).
- A piston (34, Fig. 2) reciprocating in said cylinder.
- A linear motor device (30, Fig. 2) provided in an outer periphery of said cylinder to drive said piston.
- A spring (24) for pushing said piston.
- Said linear motor having an inner yoke (23, Fig. 2), an outer yoke (22, Fig. 2) located outside said inner yoke.
- A coil-wound body (22b, Fig. 2) and a movable magnet portion (21, Fig. 2) located between said inner yoke and said outer yoke.

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- A first and second clamping members (31a and 31b, Fig. 2) for clamping said outer yoke, and a spacer (100, edited Fig. 2; par. 41, lines 11-15) for coupling (par. 41, lines 1-15) said first and second clamping members at a given spacing.
- A support portion (20, Fig. 2) for supporting a spring (24) for pushing said piston, the first clamping member (31b, Fig. 2) being provided with said support portion, and a second clamping member (31a, Fig. 2) being mounted to the cylinder (31, Fig. 2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang '759 in view of Lee (US Patent No. 6,238,192).

Chang '759 discloses:

- The outer yoke (22, Fig. 2) is made of a plurality of yoke blocks (22a, Fig. 2) arranged in a circumferential direction of the first and second clamping members (31a and 31b, Fig. 2).
- The outer yoke blocks (22a, Fig. 2) being separated in a longitudinal direction of said spacer.

Chang '759 does not explicitly disclose:

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- The outer yoke blocks being bonded to the first and second clamping members with welded portions interposed there between.

Lee '192 discloses:

- Bonding the yoke blocks (111, Fig. 6) to the first and second clamping members (210 and 220, Fig. 6) with welded portions (col. 2, lines 46-52) in between them.

The advantage of Lee '192 is to provide a simple manufacturing process (col. 5, lines 19-22).

Lee '192 teaches that it is known to provide the bonding of the yoke blocks (111, Fig. 6) to the first and second clamping members (210 and 220, Fig. 6) with welded portions (col. 2, lines 46-52) in between them. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the bonding of the yoke blocks (111, Fig. 6) to the first and second clamping members (210 and 220, Fig. 6) with welded portions (col. 2, lines 46-52) in between them as taught by Lee '192, since Lee '192 states that such a modification would provide a simple manufacturing process (col. 5, lines 19-22).

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang '459 in view of Smith et al. (US Patent 5,988,892).

Chang '459 discloses:

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- A method of manufacturing a linear motor (30, Fig. 1) by fixing (par. 41, lines 5-20) a first and second outer yoke block (22a, Fig. 2) to a first and second clamping member (31a and 31b, Fig. 2), respectively.
- Coupling said first and second clamping members together with a spacer (100, edited Fig. 2; par. 11-14) interposed there between, and fixing said first and second outer blocks to each other (par. 41, lines 5-8).

Chang '459 does not explicitly disclose:

- Bonding or fixing with ultrasonic welding.

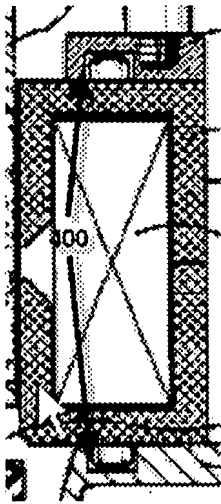
Smith et al. '892 discloses:

- Bonding or fixing with ultrasonic welding (col. 4, lines 35-38).

The advantage of Smith et al. '892 is to provide a rapid assembly, relatively low cost, and cleanliness of operation by applying ultrasonic welding (col. 4, lines 35-38).

Smith et al. '892 teaches that it is known to provide bonding or fixing with ultrasonic welding (col. 4, lines 35-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide bonding or fixing with ultrasonic welding (col. 4, lines 35-38) as taught by Smith et al. '892, since Smith et al. '892 states that such a modification would provide a rapid assembly, relatively low cost, and cleanliness of operation by applying ultrasonic welding (col. 4, lines 35-38).

In re claim 5, Chang '459 discloses the first and second clamping members (31a and 31b, Fig. 2) are coupled together with a gap (400, edited Fig. 2) provided between said first and second yoke blocks (22a, Fig. 2).



8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto (Japanese Publication 2003-139429) in view of Chang '759.

Makoto '429 discloses:

- A Stirling engine (Fig. 8) having a cylinder (9, Fig. 8) provided in a casing, and a piston (2, Fig. 8) and a displacer (1, Fig. 8) that reciprocates in said cylinder.
- A spring (4, Fig. 8) for pushing the displacer (1, Fig. 8).

Chang '759 discloses:

- A linear motor device (30, Fig. 2) provided in an outer periphery of the cylinder (32, Fig. 2) to drive the piston (34, Fig. 2).
- Said linear motor having an inner yoke (23, Fig. 2), an outer yoke (22, Fig. 2) located outside said inner yoke.
- A coil-wound body (22b, Fig. 2) and a movable magnet portion (21, Fig. 2) located between said inner yoke and said outer yoke.

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- A first and second clamping members (31a and 31b, Fig. 2) for clamping said outer yoke, and a spacer (100, edited Fig. 2; par. 41, lines 11-15) for coupling (par. 41, lines 1-15) said first and second clamping members at a given spacing.
- A support portion (20, Fig. 2) for supporting a spring (24) for pushing said piston, the first clamping member (31b, Fig. 2) being provided with said support portion, and a second clamping member (31a, Fig. 2) being mounted to the cylinder (31, Fig. 2).

The advantage of Chang '759 is to provide a linear motor that prevents the impact resulting from an excessive movement of the piston (par. 18, lines 7-9).

Chang '759 teaches that it is known to provide a linear motor device (30, Fig. 2) with clamping members (31a and 31b, Fig. 2), a spacer (100, edited Fig. 2), and a support portion (20, Fig. 2), as well as the other features listed above. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a linear motor device (30, Fig. 2) with clamping members (31a and 31b, Fig. 2), a spacer (100, edited Fig. 2), and a support portion (20, Fig. 2), as well as the other features listed above as taught by Chang '759, since Chang '759 states that such a modification would provide a linear motor that prevents the impact resulting from an excessive movement of the piston (par. 18, lines 7-9).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cho (Japanese Patent 11022642) discloses a linear compressor

with a first and second clamping member with a spacer in between the two members. Kim (US Publication 2004/0258543) discloses a linear compressor with a first and second clamping member and an inner and outer yoke, with a spacer in between the two clamping members. Hong et al. (US Publication 2004/0245863) discloses a linear compressor with the outer yoke having spacers in between the two clamping members. Lee (US Patent 6,339,876) discloses ultrasonic welding technique.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Jacobs whose telephone number is 571-270-1429. The examiner can normally be reached on M-Th, 7:30am-5:00pm est.; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

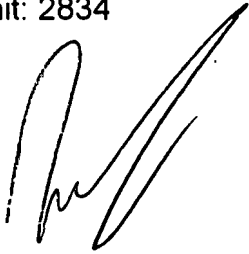
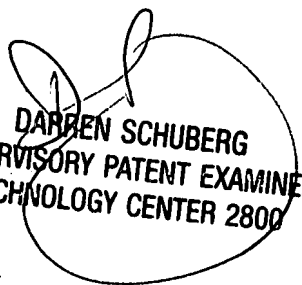
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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DJ

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DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800